In the past two years the Audit Inspectorate mounted a number of projects which involved across the board research of topics thought to be worthy of comparative study. This report deals with one such study and it is hoped that this publication will lead to consideration of the points which have emerged. These are not intended as definitive statements but rather as audit views of matters deserving attention.

This study has been directed by Mr J Sprigg DGA, IPFA, of the District Audit Service and carried out by Mr HA Butt FCA, MIMC, MIM, MBCS of Price Waterhouse.

The Audit Inspectorate wishes to acknowledge the considerable assistance afforded by the officers and members of the local education authorities and polytechnics involved in the study, the field staff of the District Audit Service and those bodies acknowledged in the report.

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PRINCIPAL CONCLUSION

1 Polytechnics are diverse and complex institutions differing in the nature of academic provision, organisational structures, management styles and physical characteristics. Nevertheless it should be possible to establish a standard framework of management information which would enable comparisons to be made between institutions and between different periods of time within an institution and to account for variances. Such a system did not exist within the institutions we visited and consequently our ability (and thus that of management) to analyse costs meaningfully was severely restricted.

2 The main problem areas in which we experienced difficulty in attempting to develop comparable information bases can be summarised as follows :

(1) Academic staff timetables - standards and availability varied significantly, even within institutions. Even the best tended to show only class contact time which was normally less than half of the contracted working week. We were therefore left in the position of being unable to analyse the contribution made by the academic staff to the administrative and technical support of the institutions. We observed, however, that in practice this contribution varied dramatically with consequent increases between the unit costs of non-teaching staff.

(2) Accounting systems varied enormously. Some were unable to generate meaningful information on a cost centre basis and relied upon fairly crude systems of apportioning costs.

(3) Organisation charts and job descriptions for non-teaching staff were frequently non-existent or substantially out of date.

(4) Records of the building stock in terms of the capacity and type of facilities available within institutions were often badly out of date and occasionally non-existent. Additional measurement of the utilisation of buildings was rarely undertaken.

(5) Inventories were frequently the subject of audit criticism and appeared often to be maintained under sufferance. Internal confidence in the accuracy of inventories was often limited and the ability to analyse increases or reductions of stock levels was non-existent.

3 The Chartered Institute of Public Finance and Accountancy (CIPFA) has published a manual of guidance entitled "Financial Information System for Institutions of Higher and Further Education in the Maintained Sector". As part of this review we were asked to identify how far polytechnics had progressed in implementing these recommendations.

This is discussed in detail later in the review; at this stage it is sufficient to say that implementation levels vary widely. We must comment that until this system, or some nominated alternative, is implemented, the diverse and semi-autonomous nature of polytechnics will prevent direct comparisons being drawn. An assumption of the CIPFA manual is that polytechnics operate on a departmental structure; costs are analysed accordingly. However, in our sample one polytechnic did not function on a departmental basis and accordingly the guidelines are presently not appropriate to all institutions.

SUMMARY OF FINDINGS AND OBSERVATIONS

4 As a result of the review we have made a number of findings and observations the most important of which are summarised below. The references in brackets are to the sections of the report where they are discussed in further detail. The findings are not set out in any special sequence and are not given any priority rating.

5 A number of factors combined to make it impossible to accurately quantify some of the concepts put forward. These factors included :

(1) The amount of time available to us in any one institution.

(2) The variances in volume and nature of statistical and other non-financial information held within each institution.

(3) The variances in both volume and depth of financial information available within each institution.

We have attempted to draw comparisons within these parameters but we must acknowledge that some of the areas could only be explored by general discussion and by a superficial examination of documents which were made available to us.

Age and grading of staff (pages 9 to 10)

6 We commenced the review attempting to establish the average cost per employee, by aggregating the cost of staff within categories of employee by department or unit within institutions. However, as the review progressed it became apparent that differences in organisational structures would make any departmental analysis invalid. Accordingly, we limited the analysis to the determination of the average cost of employees for the institution as a whole. This analysis revealed a wide range from £1,311 to £1,715 per student for academic staff, a difference of 31% and a range of £317 to £787 per student for non--academic staff, a difference of 148%. Differences in the cost per full-time equivalent academic staff member ranged from £11,000 to £14,200, a difference of 29%. When applied to the absolute numbers of staff in post these differences obviously have an effect on the total costs for an institution.

7 We attempted to compile an age profile at each institution, but other than indicating the number of staff approaching retirement age, we could not determine any relevant conclusions from this information. We were unable to complete this exercise at each institution because there was insufficient information readily available.

8 However, we did note that different local conditions of service operate between polytechnics. Clearly, London salary weightings have an impact on both academic and non-academic staff costs. However, variances in the length of the working week for non-academic staff, allied with these supplements can produce variances of up to approximately 12% in cost per hour terms.

Multi-site operations (page 11)

9 It is readily apparent that multiple site operation can cause additional expense to be incurred by polytechnics. This cost falls into two categories. Firstly, that which is self evident such as the cost of bus services, telephone lines and mail services. Secondly, that which is less easily discernible, such as the cost of full time site officers who would normally be based in a central office, duplication of library staff and provision, staff inter-site travel etc.

10 Owing to the current level of information available in many accounting systems and the complexity of this area of activity it is extremely difficult to quantify the incremental cost of multiple site operation. Nevertheless, it is a problem suffered by 5 of the 6 polytechnics visited. It is unlikely that any of the institutions will centralise to any single site so this is not a problem which will disappear. A more scientific analysis may prove worthwhile at a later date. Such an exercise would need to establish rigid guidelines for the classification of specific items of expenditure to enable meaningful comparisons to be made on a uniform basis.

Surplus resources following the contraction of teacher training (page 12)

11 When teacher training and other colleges were merged with polytechnics the approach adopted in accounting for the mergers differed between institutions. In some cases buildings and other assets were sold and in other instances they were retained by the expanded polytechnics.

12 Action taken at the time of the amalgamations now has an impact on unit costs. However, at the time of the mergers there was no evaluation made by institutions of the assets and resources which were to be absorbed. Accordingly, establishing what the actual result of the integration of teacher training has been on unit costs of polytechnics would be virtually impossible.

Research (pages 12 to 13)

13 For the purposes of this review the only research activities considered were those which are easily identifiable, namely externally funded projects and internally funded staff.

14 The level of externally funded projects is small both in terms of the number of projects undertaken and the value of grants attracted. This ranges from a reported "nil" at polytechnic D to £214,000 representing an unknown number of projects at polytechnic A.

15 The number of internally funded staff is currently falling at most institutions as economic pressures increase. In the year of review, 1980/81, this range of activity was undertaken by 41 staff at polytechnic C to "nil" at polytechnic D. However, a major input to research is undertaken by academic staff either in addition to their teaching load or instead of teaching duties. In the latter instance remission from class contact hours is often granted.

16 From our visits to institutions we found only one which operated a system of timetabling which allowed a detailed analysis of academic time to be undertaken. This lack of information prohibited us from quantifying the amount of academic time which is spent on research but prompts us to comment on the lack of control. With academic staff costs comprising approximately 50% of an institution's budget the level of control exercised by the majority of the polytechnics which we visited was loose.

Consultancy (pages 13 to 14)

17 The volume of consultancy undertaken by a polytechnic should benefit the institution by reducing the unit costs. That is, of course, if the income is shown in the main polytechnic accounts. We found a wide range of practices among institutions with fees from consultancy being treated in different ways. This finding was reinforced in the publication on consultancy dated December 1982 by the CDP Industrial Liaison Advisory Group.

18 We are of the opinion that the level of consultancy which is declared is often far less than that which is actually undertaken. Financial information in this area was found to be limited but the records which did exist generally showed low levels of income. Accordingly, because of the problems of definition and determination, we did not feel that unit cost comparisons were appropriate in this area.

Academic mix of courses
(pages 14 to 15)

19 In attempting to analyse financial information over the various faculty groups into which courses can be summarised we became aware of anomalies and inaccuracies in basic information. Out of the six polytechnics visited the information provided by one institution was not detailed enough to allow a faculty based analysis. In another, due to the operation of a modular course, which accounted for a large percentage of the total student population, such analysis was not easily applicable. Accordingly, our work has not resulted in a detailed comparative report in this area.

20 However, we do recognise the fact that courses which are included under a Group 1 or Art & Design faculty analysis will, in general terms, be more expensive to operate than those in Group 2. It therefore follows that a polytechnic which is biased towards Group 1 or Art & Design subjects may incur higher costs than polytechnics operating with a different emphasis. Equally, we acknowledge that there may be wide variations in cost within and between faculty groups due to variances in departmental mixes.

21 We suggest that until costing and timetabling systems are developed which allow individual course costs to be accurately computed, the faculty group problem will remain either unsolved or open to dispute. Academic staff costs account for approximately 50% of total tuition costs at polytechnics. Accordingly, we feel that this is an area which should be given some priority in terms of establishing an accurate base of information.

Management practices (pages 15 to 17)

22 In considering the different management practices of individual institutions it was readily apparent that differences in unit costs would be found. It is possible to quantify the costs of the directorate of an institution and analysis shows a range of £22 per student at polytechnic E to £50 per student at polytechnic F. However, we do not feel that such analyses necessarily reflect management styles; this is because of the varying degrees of involvement in managerial areas which we saw were undertaken by Heads of Faculty and Head of Department in each of the polytechnics. It does, however, reflect the wide variation in volumes of staff engaged in non-teaching Directorate support roles.

23 A more detailed assessment of a complete institution is necessary taking into account formal structures such as faculty and departmental operation as well as less formal structures such as departmental management teams. Such an exercise is both extensive and outside the scope of this review. Although in saying this we feel that it would be worthwhile at least to assess the "price of participative management".

Use of polytechnic facilities by outside bodies (pages 17 to 18)

24 The range of facilities available for external use is broad and extends from the use of a library to fully catered hostel accommodation during vacations. We found varying levels of activity among polytechnics often reflecting management preferences for outside involvement rather than the facilities available. Income received from such activities is spread throughout polytechnic accounts, with elements being shown against hostels and catering as well as the main accounts.

25 During the year of review, the level of externally generated income was low and we felt it to be insignificant. To illustrate this a range of £53 income per student to a reported "nil" is generated from short courses which is a major element of outside usage.

CIPFA - Manual of Guidance (pages 18 to 20)

26 We were asked to consider how far polytechnics had progressed towards implementing the recommendations of CIPFA in their publication entitled "Financial Information System for Institutions of Higher and Further Education in the Maintained Sector".

27 We identified a wide variety of accounting systems during the review, together with differing practices and attitudes. Four of the polytechnics visited had implemented the CIPFA recommendations (some recently) whereas two had not. This is not, however, necessarily a reflection of the accounting systems available to institutions but one of attitudes towards implementation. The degree of implementation which we found was as follows :

Polytechnic A - Computerised system requires development

Polytechnic B - Computerised system fully operational

Polytechnic C - Computerised system fully operational

Polytechnic D - Highly sophisticated computer system requires additional programming once polytechnic requirements are specified

Polytechnic E - Manual system fully operational at polytechnic - computerised local authority system requires development

Polytechnic F - Computerised system currently undergoing additional development

Levels of service provided and information produced (pages 20 to 21)

28 We were not specifically required to assess the levels of service provided to students and staff at polytechnics or the amount of management information produced. However, it was apparent after visiting a small number of institutions that widely differing practices existed.

29 We were not able, as part of this review, to quantify the marginal effect of different activities such as student counselling services, high levels of staff facilities or the additional cost of operating particular information systems. However, when undertaking unit cost comparisons the extent of these provisions is a factor in explaining differences between institutions.

Utilisation of facilities (page 21)

30 It became apparent to us early in the review that the spare capacity available to a polytechnic had an effect on unit costs. We were told that in two institutions the student population had been at the maximum possible for a number of years.

However, in two further instances the option existed, and had been taken, to significantly increase the total number of students. This had the obvious effect of increasing the divisor in the unit cost equation, thus reducing the fixed unit cost of the polytechnic at a stroke.

31 Within this context we attempted to analyse the extent to which institutions met DES space norms. However, because of lack of detailed information in some institutions, an overall comparison was not possible.

Academic staff costs (page 22)

32 The principal cost element within polytechnic expenditure relates to academic staff. Indeed, Appendix 4 shows a range of 45.5% at polytechnic C to 58.6% at polytechnic B, representing the proportion of the total budget relating to academic staff costs and total expenditure.

33 The control of academic staff is measured by the DES as part of its "Spring Survey" undertaken for the Pooling Committee. Student/staff ratios (SSR's) are produced which act as one measure of the efficient use of academic staff. Such information can be used by polytechnic management as a basis for the distribution of resources or formulation of internal targets.

34 When examining information which is based upon SSR's the large number of variable features which affect the statistic should be considered. For example, the merger with teacher training colleges, the capacity to increase student numbers and numerous other factors will all affect the ratio. In addition the teaching style of an institution will have an impact on unit costs. Polytechnic D for instance teaches a large proportion of its students through a 'modular course' whereas Polytechnic F uses small teaching groups.

Other matters arising

35 A number of other areas were covered as part of our review. The major element in this category was the provision of a report to appropriate District Auditors on audit matters arising from the study at each polytechnic. These reports were compiled and submitted on the conclusion of each visit.

36 In addition, we also considered the effect on unit costs of a number of other areas. When we considered catering and hostel activities, for example, we attempted to obtain evidence of an institution's intentions to meet CLEA guidelines. Although we found differing degrees of emphasis, all polytechnics had taken steps towards reducing overall deficits. However, the overall effect of these activities on unit costs was not felt to be significant. Other areas are dealt with as part of the consideration of variances in unit costs which is discussed on pages 35 to 36.

DETAILED FINDINGS

1 The objectives set for the review suggested that we were not required to comment on the effectiveness of the institutions visited. This was to be regarded as a specialist matter for educationalists, and, as such, beyond the scope of this review. However, it was obviously necessary to undertake some comparative work in this area of efficiency. Accordingly, the DES "Spring Survey" results are reproduced in Appendices 9, 10, 11, and 12 to this report. We undertook specific tests to assess the accuracy of this information.

2 In the paragraphs 4 to 84 we have commented on the propositions put forward as part of the objectives of the review. We have dealt with each of these areas on a discrete basis.

3 We have then attempted to analyse the variances in unit costs displayed in the PFOG return. This analysis of costs was undertaken on the basis of actual costs reported for 1980/81, as the analysis of figures for 1981/82 did not become available until this exercise was nearing completion.

AGE AND GRADING OF STAFF

4 One of the reasons suggested for variances in unit costs between polytechnics was the age and grading profile of staff working in the institutions.

5 At each establishment we attempted to complete both an age profile for the polytechnic as a whole and a grading profile for individual departments or units. It soon became apparent, however, that the varying structures operated amongst institutions made such analysis meaningless. In addition, the only relevance which we could attribute to the production of an age profile was the identification of the numbers of staff approaching retirement age.

6 As far as academic staff are concerned, we were able to develop an analysis of staff who were on the maximum salary for their grade. This is shown as Appendix 5 and shows some disparity between institutions, ranging between 52% at polytechnic D to 80% at polytechnic A.

7 Amongst the administrative and technical staff we found large variations in the grading structures. We were given sight of an analysis of senior administrative posts which had been undertaken by the Committee of Polytechnic Secretaries (COPS) on a national basis, the post of 'Chief Administrative Officer' ranged between VPI2 and PO2 (in March 1982), a potential maximum variance of over £8,500 per annum. The range of Finance Officers salaries was smaller being about £5,000 per annum. Further confusion in comparisons occurs through the occasional practice of the appointment of staff on Burnham-related salaries to administrative posts.

8 Although the COPS survey was aimed at specific posts further wide ranges in the numbers of posts in the Principal and Senior Officer range were apparent even amongst polytechnics of similar size. This is illustrated in Appendix 6 and appears to support the proposition that the grading profile of the institution has some impact on the costs of that institution.

9 A similar situation was found to exist amongst staff in the learning resources area. This grouping covers, amongst others, professionally qualified librarians. There appears to be no standard policy on gradings of staff in this area in that some of the polytechnics pay librarians on Burnham salary scales, whereas others pay within the administrative scales. This, again, creates anomalies in the unit cost calculation. Details of the split of salary scales and grades are shown in Appendix 6.

London allowances

10 Although not directly concerned with grading, the payment of supplements to staff working in the London area clearly also affects on average salary levels. In the sample of polytechnics visited, only polytechnics A and F attracted this supplement. Their staff were paid a mixture of inner and outer London supplements and we were told that the estimated average supplement at the time of the survey was £500 per annum, which would be the equivalent of approximately £60 per FTE student at both polytechnic A and F.

11 Administrative staff at polytechnic A are paid outer London supplements but the situation here is further complicated by local conditions of service which require staff to work a 35½ hour week compared to the 37 hour weeks found elsewhere. We estimated that the impact of this supplement and reduced working week means that the cost per hour of administrative and technician staff is 12% above those in the provinces.

12 Staff at polytechnic F are also paid London supplements but work a 36 hour week.

MULTI-SITE OPERATIONS

13 The operation of an institution from multiple-sites has been quoted by a number of bodies as being a contributing factor to increased unit costs. Polytechnics in the sample selected displayed different positions, details of which are as follows :

Polytechnic A - 8 principal sites spread over a wide geographical area

Polytechnic B - 2 principal sites and a further site 9 miles away

Polytechnic C - 3 principal sites and a further site 20 miles away

Polytechnic D - 2 principal sites (approx. 5 miles apart)

Polytechnic E - Single site operation

Polytechnic F - 11 principal sites spread over a wide geographical area

14 At each polytechnic we attempted to identify the principal sites and visited as many as possible. It was readily apparent that the standards of accommodation displayed at different sites varied substantially. This obviously has an effect on unit costs in that the original capitalisation and recurring maintenance costs occur as a result of previous local authority decisions. It must be considered, however, that some buildings inherited during mergers were of high quality, as at polytechnic D. Equally, polytechnic A absorbed a listed building which has proved to be very expensive to maintain.

15 Certain incremental costs of multi-site operation were easily discernable such as the bussing of students between sites, mail services and polytechnic transport. Less easily quantifiable were the incremental costs of the duplication of provision. Such things include the duplication of staff to man library facilities and the additional book stock required. Site officers are necessary to maintain a functional presence on principal sites but the extent to which this increases the manpower requirement of a centralised activity is open to conjecture.

16 A further feature of operating on split sites is the effect that this has on communication and management. In polytechnics B and C, each operating from three principal sites, senior management was centrally located. However, in polytechnic A a member of the directorate was based at each of three of the main sites. An O & M Study would be needed to quantify the precise effect of this but it undoubtedly does have an impact on unit costs in that support staff cannot easily be pooled.

SOUTHAMPTON LIBRARY UNIVERSITY

SURPLUS RESOURCES FOLLOWING THE CONTRACTION OF TEACHER TRAINING

17 Teacher training and other colleges were absorbed into institutions over a period of years prior to this review. An objective set in the specification was to quantify the effect of surplus resources on unit costs. We saw these amalgamations as having two principal effects.

18 Staff in excess of polytechnic requirements who remained in employment were absorbed into institutions. The speed of any reduction in staff numbers affected unit costs in terms of the number of surplus staff still employed at the time of review. A polytechnic's ability to release staff largely depended on local education authority policies. For example if the Crombie compensation scheme was widely applied and other attractive early retirement or voluntary severance schemes were operated then a reduction in staff could be quickly achieved. However, if such schemes were limited in application then surplus staff may have remained, both in academic and non-academic areas.

19 Generally, however, the effects could not be quantified. It was obvious that if a low number of students and a relatively high number of staff were absorbed then the affect on the overall SSR could be drastic. Particular problems appear to have been experienced in this area at polytechnics A and C. All polytechnics have shed staff in the past but none have yet enforced compulsory redundancies. In certain cases new roles were created for former teacher training staff, even though only limited teaching duties existed, and in some cases no teaching role existed. Certainly, some academic staff on Burnham salary scales were fulfilling purely administrative duties, which may have the effect of reducing administrative staff requirements though at an added cost.

20 The second aspect of the absorption of the teacher training function is that the polytechnics inherited additional buildings capacity and stocks of equipment and consumables. Two of the polytechnics visited have been active in disposing of surplus buildings inherited in this way, whilst the remaining three have attempted to assimilate the former teacher training colleges into the expanded polytechnics. One polytechnic visited was not affected by this issue. The benefits of the equipment and consumables which were inherited were never quantified although it has been implied that the teacher training colleges were frequently 'lavishly' equipped. The inference to be drawn is that the use of this stock of equipment and consumables has fortuitously held down the unit costs of the institutions concerned. Although we recognise this, we fail to see how it could ever be accurately quantified.

RESEARCH

21 It has been argued that the level of research undertaken at a polytechnic will affect the overall unit cost. This part of the review attempts to quantify the affect on the five selected institutions.

22 Research can be classified into four distinct areas :

(1) Externally funded projects.

(2) Polytechnic funded projects.

(3) Research undertaken by students as part of their studies.

(4) Research undertaken by staff as part of their preparation.

23 The exercise did not consider items (3) and (4) as any records maintained were usually inadequate to allow an accurate assessment of the costs or benefits to a polytechnic.

24 We have established that in the institutions visited the two elements of research upon which we have concentrated have not had a significant impact on unit costs.

25 The staffing costs of internally financed research ranged from a reported "nil" to £49 per student. This seemed to reflect the attitude of each of the polytechnics and local authorities although, of course, it fails to recognise the volume of research work undertaken by full-time academic staff.

26 Appendix 8 shows the analysis of externally financed research accounts published by PFOG. The reported range of activity can be seen to be quite large, but the volume of overhead recovery through establishment expenses is insignificant. Again, policies on this subject varied between institutions. It is also worthy of note that grants from research councils do not allow an addition for overheads but other contracts for industry and commerce will carry a minimum oncost of 10% or more.

27 It was brought to our attention during the review that as a result of increasing economic pressures, internally funded research is a declining area. For similar reasons efforts are being actively directed towards obtaining external sponsorship for an increased number of projects.

28 From our review it would appear that the major research activity is undertaken by both staff and students. However, this is not separately identified other than in terms of the number of projects reported at such year end. If the amount of staff time spent on research was required to be quantified then some provision would have to be made on timesheets or timetables to allow information to be collected.

CONSULTANCY

29 For the purposes of this exercise 'consultancy' has been taken to mean exercises undertaken by lecturers in their private capacity with the polytechnic's support on behalf of clients who pay a fee for the work.

30 A polytechnic becomes involved when a lecturer uses the institute's resources to undertake such work. As a result the polytechnic becomes entitled to financial recompense.

31 Resources may be utilised in many different forms ranging from the use of equipment to the use of staff time. In an ideal situation this usage would be assessed and quantified prior to a project being agreed with a client. An institution would therefore have a certain degree of control over the use of its resources.

32 However, it was our experience to find that many different attitudes exist towards lecturers undertaking such projects. Even though it was a recognised activity in every polytechnic that we visited we encountered few effective systems of control and occasionally, little will to attempt to control consultancy.

33 As a result of the lack of control any figures produced by polytechnics which purport to represent the level of consultancy undertaken at the institution may be regarded as potentially inaccurate. A prime cause of the problem is the lack of control over academic staff resources. As timetables often did not require staff to be on site for this full contractual hours it became difficult to prove exactly in whose time a lecturer is actually working.

34 Although it is recognised that the level of consultancy will have an effect on unit costs, the amounts involved which have been disclosed to us are not significant.

ACADEMIC MIX OF COURSES

5 Individual courses can be categorised into faculty grouping, namely Group I, Group II and Art and Design. Group I subjects have a bias towards laboratory and workshop bases whereas Group II courses are classroom based. As expected, Art and Design courses tend towards the practical base similar to Group I subjects. It is a generally recognised fact that courses with a more practical bias are more expensive to operate than those which are classroom based. Therefore it follows that polytechnics with differing balances of these subjects are likely to have different unit costs and that costs need to be disaggregated to faculty groups.

36 The major elements of laboratory and workshop based courses which make them more expensive are the space taken up by such units, the specialised equipment and consumables necessary and the corresponding high level of technician support.

37 Given a flexible, sophisticated costing system it should be possible to analyse expenditure and income to extreme levels of detail. However, the accounting systems which we reviewed as part of this exercise were either not sufficiently developed and in some cases not capable of obtaining such accuracy. Certain polytechnics have in fact undertaken analyses of data to arrive at individual faculty group costs.

However, the degree of subjective judgement which seemed to be brought to bear on figures to be apportioned led us to decide that any conclusions made on this level of data would not stand in-depth analysis.

38 If comparisons are required in this area the first steps to achieving this are centred around the formulation of a recognised uniform costing system. This again returns to the major cost element, lecturers costs. The control of the application of these to any costing system is the key to a successful analysis. At present this control, given existing timetabling procedures, would not be possible to achieve.

MANAGEMENT PRACTICES

39 Each of the polytechnics which we visited exhibited differing management practices which were displayed through different organisational structures.

40 Any comments which we could make on the suitability or effectiveness of management structures would simply be subjective judgements rather than a measured rationale. Accordingly, we have limited our report on this area to a statement of the practices operating at each institution.

41 Polytechnic A operates with a current directorate establishment of 4 persons, but at the time of the review only three of these posts were filled. Management is physically dispersed with the director on one site and the deputy and assistant director on different sites. This system maintains a presence on site but makes meetings and management team consultations difficult. This problem is further aggravated by the specialised responsibilities of the deputy and assistant directors which is compounded by the non-replacement of senior staff whose responsibilities have been absorbed by the directorate.

42 The central administration of this polytechnic is limited and individual faculties have large administrative support teams.

43 Academic management is exercised through a matrix structure with deans of faculty reporting to the directorate. Course leaders, as their title suggests, are responsible for individual courses throughout the polytechnic. They report to deans of faculty in the first instance. As the level of control is seen to be at a course level at this polytechnic then heads of department posts do not exist.

44 A large number of committees exist to discuss all aspects of the polytechnics activities from staffing and resource allocation through to research. Such a system seems to be designed to ensure that every member of staff has an opportunity to express their view point. This appears to cause a duplication of effort between faculty and centrally based administration.

45 Polytechnic B operates with a directorate of 7 staff, being a director, 2 deputy directors and 4 assistant directors. The directorate is situated in a self-contained building a short distance from the main polytechnic site.

46 The directorate ensures that both local education authority and polytechnic formulated policies are implemented. Heads of schools are left to manage their within the resources allocated to them. This direct delegation of management abbrogates the need for faculties and consequently deans. There are 18 heads of school at this institution. In addition there are three heads of specialist units which are non-teaching departments.

47 The amount of internally constituted official committees is limited, which is a reflection of management's dislike of formality rather than the opinion that they are unnecessary. In fact, groups of interested staff do organise meetings as required but on a purely informal basis.

48 Administration is organised initially through a chief administrative officer. The general level of administrative support is extremely low which may be a reflection of the local education authority's policies rather than any indication of requirement.

49 Polytechnic C operates with a directorate of six staff of whom four are located on the principal polytechnic site. The remaining two members of the Directorate are also deans and are located on the sites occupied by their respective faculties. There is however no policy relating to siting of membes of the Directorate. Academic control is organised in a traditional manner through 4 deans of faculty and 28 heads of department.

) The level of administrative support to both the directorate and to academic staff and students is reflected in both the high numbers of staff and the high quality and quantity of information which exists within the institution.

51 Polytechnic C is virtually a self-contained unit, which relies on outside bodies for as little as possible, the staff preferring to generate their own control systems and management information.

52 Information is generally regarded as 'overt' in this institution and staff are employed in roles designed to promote this high priority issue. The level of internal committees is large, reflecting this management style.

53 Polytechnic D operates through a directorate of 4 with a traditional faculty/departmental support structure, although the 'modular' course in operation was conducted on a polytechnic-wide basis.

54 Levels of administrative and technician staff were low, despite critical comments made by the Council for National Academic Awards. The effect of this low level of staff was displayed in the limited quantity of management information which existed within the polytechnic.

55 Academic control was exercised through 4 deans of faculty and 17 heads of department. The number of internally constituted committees did not appear to be large.

56 Polytechnic E had a directorate of 4 and again a traditional faculty/departmental structure existed. There were 3 deans of faculty and 13 heads of department.

57 The level of control exercised over individual academic staff was high. Staff were required to complete timetables for two terms detailing their 30 hour contracted week. Information was required as to each member of staff's function and physical location for each of those hours. This was a system of control generated as the result of management style which we did not encounter at any other institution which we visited.

58 The level of administrative support was low but management information systems appeared adequate. Internally constituted committees seemed to us to be used sparingly. However, we felt that as a result of the single site operation a greater degree of informal meetings would take place than at institutions with multiple sites.

59 Polytechnic F had a directorate of 9 and a faculty/departmental structure. There were 8 deans of faculty and 23 heads of department.

60 Control was exercised on a decentralised basis through a system of faculty administration by representatives of finance and the registry. Attempts had been made and were continuing to establish comprehensive academic staff timetabling procedures to provide a sound base of management information. However, our review of a full year's timetables revealed an inconsistent approach and a lack of instructions for completion.

61 The level of administrative support was high at the time of review, in comparison to other polytechnics visited. A policy of decentralisation was pursued a number of years ago but was never fully implemented. The resultant increase in staff numbers and costs was not limited to faculty based staff but included a growth in central administration in addition. This has been recognised by members of the directorate who are currently pursuing ways of rationalising this over provision.

USE OF POLYTECHNIC FACILITIES BY OUTSIDE BODIES

62 All of the polytechnics visited possessed facilities with potential for earning additional income. The six polytechnics covered the whole spectrum of approaches to this subject from the aggressive commercial approach at polytechnic C to a low-profile attitude at polytechnic D. It may be that the different stances taken by institutions on this issue were symptomatic of the attitude of their local education authorities towards new income. Obviously if additional income is immediately absorbed into local authority balances with little tangible benefit to the polytechnic then there is little incentive to increase revenue. A further problem may be that of insufficient staff time being available to market the facilities.

63 Certain facilities, such as libraries, are used by outside bodies and no charge is made. Others attract charges but these are not accounted for separately, such as allowing the general public to use cash catering facilities. Accordingly, any comparison at a unit cost level would need to be based on appropriate measures (eg book issues and cost recovery). However, the following are examples of major income generating activities which we have found :

(1) A contract valued currently at a figure in excess of £150,000 had been agreed with a private company by polytechnic C for vacational use of hostel facilities. It is hoped that this will result in the hostel account showing an annual surplus. However, the benefit of this revenue did not accrue in the year under review.

(2) The computer manager at polytechnic B actually has a clause in his contract of employment which requires him to generate income from commercial development. Net income, after allowing for the direct costs of providing the service is available to purchase new computer equipment. Income of approximately £50,000 per year is currently being achieved.

(3) Short courses were offered by all the institutions which we visited and details of income generated were shown for all institutions other than polytechnic D.

CIPFA MANUAL OF GUIDANCE

64 CIPFA have published a document entitled "Financial Information System for Institutions of Higher and Further Education in the Maintained Sector". Briefly, the manual suggested a costing system which would identify individual "subjective" costs for individual "objective" departments or units. CIPFA recommended that this type of system be introduced into colleges of further and higher education, and polytechnics as soon as possible.

65 As part of the specification for this review we were required to assess to what extent individual institutions had implemented the CIPFA recommendations. We found a widely differing range of views and practices amongst institutions. These affected the degree of implementation to a greater extent than the available accounting systems.

66 The CIPFA system assumes that the level of detail at which costs should be collected is that of departments. In the case of polytechnic A, and we are led to believe, other institutions which we did not review, a departmental structure is not operated. Consequently the application of this system is restricted in its scope.

67 Described below in outline are the levels of implementation achieved at the time of our study :

(1) Polytechnic A - the polytechnic relied upon the local authority's accounting system for financial information. This system did not easily lend itself to meeting CIPFA guidelines. Although a number of information systems were in existence, run on the polytechnics own computer, the accounting system was not one of them. Accordingly the level of information was extremely broad based. To implement the CIPFA recommendations the polytechnic would require a complete internal accounting system to be written; alternatively, the local authority would have to develop its own systems thus benefiting the polytechnic.

However, as the polytechnic does not have a departmental academic structure it is unlikely to be readily available to adapt to the CIPFA guidelines which accept this as the norm.

It is worthy of note, however, that the ordering system forms the basis of a commitment accounting system. The reason why this cannot be used to generate information is that it is difficult to reconcile to published accounts. As other systems have been developed by different sections of the polytechnic, covering such areas as staffing costs, it may be that an integration of existing systems is all that is necessary.

(2) Polytechnic B - the polytechnic uses the local authority's accounting system which is highly sophisticated. This allows costs to be collected at various levels of detail as requested by users.

The polytechnic finance staff were clear as to their systems requirements and these were integrated into the ensuing management reports. As a result, CIPFA guidelines are met in full.

(3) Polytechnic C - both the polytechnic and the local education authority display high levels of computerised information. Accounting and costing information is produced by the local authority's systems and provides a high level of detail. As individual cost centres are readily identified it is a relatively simple task to publish information which meets CIPFA guidelines.

(4) Polytechnic D - the local authority has a highly sophisticated management information system in operation. The system relies heavily upon the user to specify information requirements. Ensuing programmes ensure that management reports are performed with the content in the format that a user requires.

However, at the time of the review this recent development had not been fully implemented at the polytechnic. Although an on-line terminal was located at the polytechnic it remained unprogrammed.

Accordingly the polytechnic relied upon the more established local authority accounting systems for information. However, the problem in this instance was that the system did not allow any large degree of analysis to be produced. This resulted in information having to be manually analysed and apportioned to produce any pertinent level of detail.

From the limited information which had been produced for the bodies responsible for collating various returns which we reviewed it would seem to us either that no great priority was given to such analysis, or that staffing shortages precluded this work.

The outcome of the lack of useful comparable information at polytechnic D can be seen throughout this review in the form of blank spaces, unallocated figures and reported "nil" activity levels.

However, this position could now be expected to change. The management information system to which the polytechnic is now party should be able to produce the very level of detail which has been lacking from the polytechnics information systems to date thus meeting the CIPFA guidelines.

(5) Polytechnic E - the polytechnic uses the local authority's accounting system to produce information which is allocated to broad cost centres. However, as a result of being a single site institution, many costs appear as a single line within management reports. Accordingly polytechnic finance staff are required to manually analyse data to produce information which meets CIPFA guidelines.

We did not examine the detail of the local education authority's computer provision. However, notes which we made during a superficial review of the systems indicate that minor systems modifications would resolve this problem.

(6) Polytechnic F - the polytechnic uses the local authority's accounting system which allows the analysis of costs to a detailed level.

At the time of review, polytechnic staff were uprating the financial systems which already partially met the CIPFA requirements. We were told that on completion of the exercise the guidelines would be met in full.

LEVELS OF SERVICE PROVIDED AND INFORMATION PRODUCED

68 A general summary of the specification for this review would be to identify the reasons for and as far as possible quantify unit cost differences at polytechnics. In a labour intensive area such as a polytechnic it would be fair to say that the level of services available to staff and students will be at least a partial reflection of the number and quality of staff who are available to provide that service.

69 An impression of variations in the types of provision at different polytechnics may be gained from a cursory glance at organisation charts or even internal telephone directories. Further analysis may reveal differences within the extent of such provision.

70 A detailed analysis of levels of provision and the reasons which have led to their instigation was not possible in the time available to us for this review. However, an indication of the types of subject to which we are referring is given below.

71 Polytechnic C had a personnel section of 12 staff who were responsible for all personnel related matters throughout the institution. As a result a high level of personnel related management information was available together with professional expertise in dealing with such matters as the implementation of new legislation.

72 In contrast polytechnic D had no separate personnel section. As some degree of personnel management is a necessity various officers of the administrative staff, as well as the director assumed responsibility for areas of this activity.

73 The facilities available to students were also widely different. In polytechnic A the facilities were generally modern and spacious whereas at polytechnic D they were small and cramped.

74 Such examples will not stand detailed financial comparison as such a review would require a complete detailed study to be undertaken at a number of institutions in which every part would be examined. Related factors such as the degree of support given to the polytechnic by the local education authority or the autonomy afforded would also have to be taken into account.

UTILISATION OF FACILITIES

75 After visiting three institutions it was apparent that the building stock and quantity of facilities available within and between polytechnics differed widely. This was shown simplistically at polytechnic D where immediately before and after peak lecture times corridors and common facilities were extremely crowded and staff accommodation was very limited when compared with facilities available at polytechnics A and C.

76 Obviously, the history of development at each individual polytechnic has an impact on the total facilities available especially where there have been mergers with large well equipped teacher training colleges.

77 We intended to compare individual institutions to norms of space per student as formulated by the DES. However, although two institutions had comprehensive details of floor area, the details held in the other polytechnics were extremely general and frequently out of date. In fact at polytechnic D, we were told that the total floor area was unknown. Although these factors combined to make an analysis between the six institutions impossible, we were able to draw some highlights from the information which we collected, including the fact that polytechnic D apparently had the most intensively used biology laboratories in the country, which contributed to its low operational cost. Additionally, some departments at polytechnic D operated at half of the DES norm, whereas some at polytechnic C had twice the norm.

ACADEMIC STAFF COSTS

78 The principal cost element of polytechnic expenditure relates to academic staff as shown in Appendix 4. Though we chose to use the Polytechnic Finance Officer's (PFOG) survey for 1980/81 actual expenditure as the main information source, we referred to the DES "Spring Survey" for details on academic staff utilisation lacking in the PFOG survey.

79 The DES analysis is drawn from a return submitted by polytechnics during the spring term of each academic year. It details the number of students and staff analysed into individual categories detailing faculty groupings and states whether full-time, part-time or some other basis.

80 Details published include, for each faculty grouping (ie, Group 1, Group 2 and Art & Design) the total number of lecturers, total number of students, average lecturer hours, average student hours, average class size and student:staff ratio. These are further analysed between advanced and non-advanced courses.

81 We have reproduced the published figures for 1980/81 as Appendices 9 - 12 but have not undertaken any tests to verify the accuracy of the original returns. Accordingly, we make no comment on the figures. (It should be noted that if the total number of students for each polytechnic as shown in these statistics is compared to that shown in the PFOG data it will not agree. This is due to the different weightings applied to various categories of students which affects the total full-time equivalent student numbers.)

82 We can, however, comment generally upon the methods of collecting information for this return both in terms of academic staff time and financial analyses. At only one of the six institutions visited did we find a reliable system of timetabling, but a detailed review of this revealed certain errors. In a number of other polytechnics substantive documentation was not available for review.

83 Timetabling or formal recording of academic staff time was generally poor at the polytechnics which we visited. However, the "Spring Survey" is completed on the basis of information drawn from this source. In publishing the results of the 1980/81 survey therefore we recognise these shortcomings and potential errors which may have resulted as a result.

84 More recent Pooling Committee surveys have requested more detailed information. This has not been limited to analyses of staff and student data in numeric terms but has extended to encompass financial information. Our experience of the limited flexibility of costing systems at polytechnics together with the sometimes arbitrary apportionments of costs leads us to question the ability of the polytechnics to complete the information consistently and accurately.

PFOG DATA

COST PER STUDENT

	1980/81 ACTUALS					
	A	B	C	D	E	F
	£	£	£	£	£	£
Total tuition costs	2,972	2,274	3,118	2,352	2,473	3,385
Academic staff	1,537	1,332	1,419	1,311	1,392	1,715
Non-teaching staff	634	317	738	372	441	787
Premises & grounds	376	303	450	227	276	438
Supplies & services	237	173	339	273	254	235
Transport	81	33	55	65	27	48
Establishment expenses	91	114	110	103	81	149
Agency services	---	---	---	---	---	---
Miscellaneous	16	2	7	1	2	15
TOTAL EXPENDITURE	2,972	2,274	3,118	2,352	2,473	3,385
Student numbers (FTE)	6,557	6,958	5,215	4,077	3,609	6,033

PFOG DATA

ACADEMIC STAFF COSTS - COST PER STUDENT

	1980/81 ACTUALS					
	A	B	C	D	E	F
	£	£	£	£	£	£
Directorate and functional officers	48	24	28	|	22	50
Dept teaching	1,321	1,190	1,218	1,306	1,298	1,581
Part-time teachers - sessional and casual	126	81	59	|	11	35
Research	26	9	49	---	23	45
Staff development	4	2	9	4	4	4
Other (including redundancy and removal relocation expenses)	11	26	56	1	34	---
TOTAL	1,536	1,332	1,419	1,311	1,392	1,715
Staff:student ratio 1981	8.2	8.6	7.8	9.9	9.6	8.3

PFOG DATA

NON-TEACHING STAFF COSTS - COST PER STUDENT

	1980/81 ACTUALS					
	A	B	C	D	E	F
	£	£	£	£	£	£
Administration and clerical	280	108	247		168	351
Technicians	153	101	187		153	262
Other	25	1	4		4	25
Computer	39	25	49	372	48	40
Learning resources	88	70	194		47	93
Student services	42	12	51		18	14
Staff development and other	7	---	6		3	2
TOTAL	634	317	738	372	441	787

PFOG DATA

PREMISES AND GROUNDS - COST PER STUDENT

	1980/81 ACTUALS					
	A	B	C	D	E	F
	£	£	£	£	£	£
Repairs, maintenance and alterations	86	50	155	26	37	52
Wages of maintenance	25	25	30	22	22	57
Fuel, electricity, gas and water	82	78	93	49	64	105
Rates	72	47	55	42	45	110
Caretaking and cleaning materials	14	6	4	6	2	23
Caretaking and cleaning staff	97	97	113	82	106	91
TOTAL	376	303	450	227	276	438

PFOG DATA

TRANSPORT - COST PER STUDENT

	1980/81 ACTUALS					
	A	B	C	D	E	F
	£	£	£	£	£	£
Own transport (Rev)	8	1	7	5	2	6
Salaries and wages - drivers	9	1	5	--	2	5
Hired transport	9	--	--	8	1	--
Staff travel and subsistence	33	12	22	14	20	24
Student transport and subsistence	22	19	21	38	2	11
TOTAL	81	33	55	65	27	46

PFOG DATA

SUPPLIES AND SERVICES - COST PER STUDENT

	1980/81 ACTUALS					
	A	B	C	D	E	F
	£	£	£	£	£	£
Equipment and consumables :						
Revenue	166	70	247	185	105	175
Capital	51	29	42	50	85	18
Leasing	---	30	---	14	24	---
Capital from revenue	---	14	---	---	---	17
Exam expenses	6	22	31	19	27	8
Furniture :						
Revenue	4	3	3	---	3	7
Capital	5	---	---	---	---	---
Leasing	---	3	---	---	---	---
Administration equipment	---	1	14	5	5	6
Uniforms and laundry	5	1	2		5	4
TOTAL	237	173	339	273	254	235

PFOG DATA

ESTABLISHMENT EXPENSES - COST PER STUDENT

	1980/81 ACTUALS					
	A	B	C	D	E	F
	£	£	£	£	£	£
Printing and stationery	---	6	8	25	5	14
Postages	9	5	8	8	5	13
Telephones	31	13	25	14	20	38
Insurances	10	19	6	13	13	11
Advertising	3	4	4	9	3	4
Publicity	6	---	7	---	15	8
Local authority central administration recharge	32	67	52	34	20	61
TOTAL	91	114	110	103	81	149

COMMENTS ON THE UNIT COST FIGURES DERIVED FROM PFOG DATA

Academic staff costs

85 Academic staff costs ranged in total from £1,311 per student (polytechnic D) to £1,715 (polytechnic F), a range of 31%. The breakdown within these figures into their major component areas reveal directorate, departmental and part-time teaching costs ranging from £1,295 per student (polytechnic B) to £1,666 (polytechnic F) per student.

86 To a large extent, the cost per student is reflected in the institutions staff:student and other ratios. However, further factors enhance this logic. Polytechnic A suffers by comparison in that it is obliged to pay its staff a London supplement. Furthermore, an analysis of the grading profile (Appendix 5) showed that a significantly high proportion of its teaching staff were on the maximum salary point for their grade, hence attracting higher average salaries. Additionally, its use of sessional teaching and the size of its directorate function in comparison to other institutions forced its unit costs to the level achieved. Costs ranging from £11,100 to £14,200 per academic employee at difference institutions were noted (a difference of 29%). No doubt this was in part a reflection of factors such as these. Further cost implications may be drawn from locally negotiated conditions of service which required that teaching staff were to have a maximum 16.5 hours class contact per week which could be reduced to 12.5 hours with remission. However, due to the timetabling problems referred to earlier in this report, the impact of this could not be quantified.

87 It is true to say that each of the polytechnics were affected by mergers with other colleges in the mid-1970's. However, both polytechnics A and C have, again, recently, been merged with other colleges where the staff:student ratios were poor. These mergers have had a subsequent unquantifiable impact on teaching staff costs. No polytechnic within this sample has suffered compulsory redundancies and most appeared to be carrying an element of under-utilised academic staff.

88 When additional costs under the academic staff costs heading - internally funded research, staff development and 'other' - are added to the 3 areas already discussed, major variations are clear. Polytechnic D has virtually no additional cost in this category, whereas polytechnic C incurs over £100 per student. The variances in unit cost for research and staff development merely reflect differing volumes of activity in institutions. The expense described under 'other' is mostly the result of staff leaving under early retirement schemes.

89 Within this cost analysis we identified large variances in the volumes of administrative and technician-type work being undertaken by academic staff. Attitudes varied between institutions. It could be argued that academics in those institutions where low levels of administrative support existed, particularly at polytechnics B and D, were more prepared to undertake these roles than their counterparts elsewhere.

Their level of expectation of support was lower and they reacted accordingly. This effort offsets the low levels of administrative and technician support in polytechnics B and D. However, the impact and cost effect of this is totally unquantifiable.

Non-teaching staff costs

90 Non-teaching staff costs ranged from £317 per student at polytechnic B to £787 per student at polytechnic F. It is not possible to compare each cost in detail because polytechnic D did not analyse its costs over these areas. Nevertheless, general comments are possible.

91 An element of the variance in administrative staff arises from the need to service multi-site operations. It has not proved possible to quantify this in detail due to lack of information, but we recognise that polytechnics A, B, C and F have particular problems in this area.

92 The split of administrative and clerical duties between polytechnics and their local authorities did not vary significantly in this sample. Therefore we expected to find some similarity in staff numbers between polytechnics of comparable size. We expected variances to exist because of differences in the numbers of departments and faculties, but the differences revealed could not be explained by these reasons alone. One explanation is that some institutions are relatively well equipped. This was reflected to an extent in the volume of information available at polytechnic C which has a high level of support compared with that available at polytechnic D where support levels were very low. It does not however explain the relatively high administrative and clerical unit cost of polytechnic A where the volume of information was not so high. However, an element of the latter's cost is beyond its direct control. For example, the impact of London salary weightings and conditions of service account for an increase in cost of about 12% in cost-per-hour terms.

93 The levels of grading of posts additionally create an impact in unit cost terms. Again polytechnics A, C and F had relatively large numbers of staff on high grades when compared with polytechnics B and D.

94 We were told at a number of institutions that academic staff undertake certain administrative and technician functions. If this could be quantified it would obviously increase the unit costs at institutions and reduce those of teaching staff. However, as previously mentioned, the timetabling records do not allow a detailed analysis of academic time.

95 A further variable within this concept is the standard of service available. Within the scope of this review we did not have the opportunities to determine varying standards such as the time taken to process an order, the speed at which minutes of meetings became available etc. Clearly, there were large variations in standards and this, again, is partially effected in the unit cost of administrative support.

96 The level of technician support has been suggested to be a function of the balance between Group 1 and Group 2 type courses. We accept that this is, in outline, true, but we would also contend that variances exist in both volume and grading terms which have a large impact in this area. Polytechnics B and D had both low numbers and grades for technicians; neither had a technician post above SO1 level. Both polytechnics had been the subject of criticism by the CNAA because of their low level of provision. By comparison, polytechnic A had 12 posts at SO1 level or above, out of a total of 160 posts in this area. Again, levels of service varied but we could not quantify this.

97 The variances in the unit costs for computer staff, learning resources, student services and staff development simply reflect the volume of services available in each institution, and the implementation of policies, in the educational field. The significantly higher unit cost in respect of learning resources staff at polytechnic C is created through that particular institution's decision to invest heavily in this field. The level and quality of facilities are significantly above any other polytechnic visited in this sample. The volume and grading of staffing is shown in Appendix 6.

Premises and grounds costs

98 This was an area where detailed comparative analysis was impossible. The huge range of building stock visible even within institutions would require a much more detailed analysis than was possible in the time constraints of this review. The exceptional items identified in this area included high expenditure created through fire damage, blue asbestos and high alumina cement problems at polytechnic C. By comparison, polytechnic D was critical of its own ability to adequately maintain its building stock and had particular problems with flat roofing and concrete cladding deterioration.

99 Within this section the cost of rates must be regarded as non-controllable in the short term. Additionally, variances in types, condition and location of buildings will have a significant impact on fuel and cleaning requirements. Standards and frequency of cleaning will also produce significant variances in this field.

Transport

100 This unit cost depends, to some extent on the geographic spread of sites within institutions. Polytechnic E is a single site institution and, accordingly, attracts the lowest unit cost. Polytechnic B has 3 principal sites some miles apart, but holds down its cost by providing no transport for students between sites and expecting its staff to travel second class. Polytechnic F has 11 sites spread over a densely populated busy urban area. Again this institution maintains a moderate level of costs by providing no inter-site transport for students. Polytechnic D provides a bus service for students between its two principal sites at a cost of about £30,000 per annum.

Polytechnic C has 3 principal sites with a further site about 20 miles away and, accordingly transport costs are high. Polytechnic A is spread over principal sites over a wide geographic area. Bus services exist between sites and staff travel costs between sites are correspondingly high.

Supplies and services

101 Equipment and consumables requirements vary because of a range of factors. This split of courses between Group 1, 2 and Art and Design clearly is significant, but other factors are equally important. The level of capitalisation and volume of modern equipment available will be significant in determining requirements. Additionally, stocks of consumables may be built up or run down, but this cannot be illustrated through existing accounting systems.

102 A further problem is that the equipment and consumables purchased which is reflected by actual costs may not actually meet the perceived requirement of the academic staff. Problems were expressed by members of academic staff in all institutions in terms of capital replacement. However, genuine fears were expressed by academic staff on revenue funding at polytechnics B, D and E. It was put to us that restrictions on expenditure which were imposed on local authorities were subsequently passed on to the polytechnics. The levels of expenditure in this area often reflected those authorities overall policies and not necessarily those of the polytechnics.

Establishment expenses

103 The costs of multi-site operation again proved significant in this area. High telephone costs were found in polytechnics A, C and F. However, specific cost cutting exercises had held down costs in polytechnics B and D. The local authority recharges are not regarded as controllable as far as the polytechnics are concerned.

CONCLUSIONS

104 As part of the objective of this review we were asked to comment on propositions which may contribute towards an understanding of variances in unit costs between polytechnics. We have already commented elsewhere in this report on some of the potential problems of definition and weighting which exist in this area. However, we have attempted to draw conclusions not only from the objective evidence to which we were allowed access. We have also drawn a number of subjective conclusions based on our experiences at the institutions.

105 Our ability to analyse the variances in unit costs was hindered by the substantial difference in the quality and volumes of financial and other management information held at the institutions. This range can be illustrated by a specific reference to polytechnics A, C, D and F.

(1) Polytechnic A had taken the decision that it was unnecessary to develop sophisticated management information systems at a time when it's critical problem had simply been seen as improving its staff: student ratio (SSR). It had only recently started to develop computerised budgeting systems and its ability to analyse its expenditure in-depth was limited by local circumstances.

(2) Polytechnic C had, clearly, devoted substantial resources over some period to attain the level of information available. It's systems covered most of the fields of finance, student enrolment and monitoring, personnel and physical resources, and were largely computer-based. The generation of information was large enough for us to query the ability of the polytechnic management to react to it all.

(3) Polytechnic D relied almost solely on the development of departmental SSR's to control its operation. It was stressed to us that this was not, perhaps, the way the polytechnic wished to operate, but was forced upon it by limitations in available resources. It's ability to analyse it's expenditure was extremely limited and it is this inability combined with the presence of a polytechnic-wide modular course within the institution which has substantially added to our problems of comparison.

(4) Polytechnic F had relied upon an analysis of expenditure by cost centres which was provided by one of its' parent local authorities as part of their accounting system. This analysis was, however, found to be unsatisfactory in that it provided insufficiently detailed information. Recognising this the polytechnic management are currently undertaking a detailed revision of the analysis to resolve this problem.

106 The amount of time available in any one institution was, of necessity, restricted. However, the actual amount of contact time available was further limited by external factors such as examinations, holidays, illness and local priorities of work, understandably, being given preference. This placed a further restriction on our ability to gather and analyse information.

CURRENT AVAILABILITY OF INFORMATION

107 Financial information within the polytechnics visited tended to be collected on a 'macro' basis and then, where possible, broken back to faculty groupings. Accordingly, accounting and other systems tend to operate at this level; polytechnic A and D have difficulty even at this level. This, inevitably, means that it is not possible to draw comparisons at a 'micro' level - that is at course or departmental level. Comparison of institutions at faculty level can even be misleading because of the differing departmental mixes and weightings.

108 Comparisons of the actual costs per student for 1980/81 are shown as pages 25 to 31. Our commentary on the principal areas has already been made.

109 We believe that the propositions put forward in the PFOG document are all essentially valid. However, our ability to quantify the comparative impact of the factors has been restricted through shortcomings in the accounting and other information bases.

110 It proved to be almost impossible to draw any meaningful, quantifiable comparisons from the information already available other than from the DES returns on academic staff which indicate student:staff ratios (SSR) etc. Even the SSR must be treated with caution because it indicates only class contact hours; it gives no indication as to how academic staff are used when they are not teaching. It was very clear that at polytechnics B and D teaching staff were carrying out substantial volumes of administrative and technician-type work. This had arisen because of the relatively low levels of administrative and technician support available in those institutions.

111 There were few opportunities to draw comparisons in other cost centre areas because the physical and organisational complexities of each of the institutions made them appear unique. Certainly, standards, volumes and locations of building stock and equipment varied enormously and reflected the piecemeal basis on which the polytechnics were originally formed, capitalised and subsequently merged with teacher training and other colleges. The same comment could realistically be made of all types of staffing levels within the institutions. It is not possible to say whether and to what extent the additional building stock and resources made available through mergers outweighed the detrimental effect of additional staffing on student:staff and other ratios.

OTHER FACTORS INFLUENCING UNIT COSTS

112 We were asked to identify any other factors besides efficiency and effectiveness which may influence unit cost. A number of areas outside the direct control of the polytechnic became clear to us during the course of the exercise.

113 A significant impact on a polytechnic's cost level is created through the policies of the local authority in which it is based. We were made aware that some polytechnics were unable to reduce academic staff numbers because of the enforcement of a policy of no compulsory redundancies, despite the fact that little or no teaching load existed for some staff. Equally, policies varied on the application of Crombie and other early retirement schemes.

BACKGROUND TO THE STUDY

1 A limited number of local authorities provide educational services which are available to students often on a national basis. The expenditure incurred by those authorities was recovered through a "pooling" system whereby each local authority had to contribute to the pool as the basis of an agreed formula. Subsequently, those authorities providing the services would recover their actual expenditure from the pool.

2 Polytechnics are substantially funded from the Advanced Further Education Pool, (AFE Pool). This pool was created by the combination of the teacher training and advanced further education pools, and until 1979/80 this was effectively an 'open' pool in the sense that all allowable expenditure could be reclaimed. However, this practice was changed in 1980/81 when the pool was 'capped' for the first time and ceilings were placed on the amount of funds available for distribution.

3 The development of the pooling systems led to the formulation of a Pooling Committee whose function was to review pooling arrangements and to recommend changes where found to be necessary. The Committee's membership is drawn from the local authorities' associations, the chairman and secretariat are provided by the Department of Education and Science.

4 Since 1973 the Pooling Committee has monitored polytechnics and some other major establishments of further education against target ratios. These ratios indicate the annual movement of both cost efficiency and indicators of organisational patterns.

5 The principal ratio monitored is the student/staff ratio. The recommended target student/staff ratios for the two main faculty groups were :

	Target band student/staff ratio
Group 1 subjects	7.5 - 8.5
Group 2 subjects	9.2 - 10.2

Group 1 faculties were defined as those broadly comprising laboratory or workshop based subjects, including courses of advanced Art & Design. Group 2 faculties were to comprise those subject groups which were more related to classroom teaching.

6 From 1978 courses of advanced Art & Design which had previously been included in Group 1 were summarised separately.

7 In 1979 a statistical review was undertaken by the Chief Inspector of Audit whose report for that year drew attention to the failure of many polytechnics to reach the Pooling Committee targets. Additionally, he pointed to wide differences in the indicators between one polytechnic and another.

8 In the same report, it was suggested that the method of funding advanced further education through the pooling system failed to provide sufficient financial incentive for the local education authority and the polytechnic to ensure an efficient use of manpower, equipment and buildings. The open nature of the funding system did not encourage a critical examination of costs as there was no direct relationship between an individual polytechnic's level of expenditure and the ultimate cost to the local education authority in terms of its net contribution or recovery from the pool. Furthermore, this method of financing, outside the general rate funding of the remaining educational provision tended to remove polytechnic expenditure from the detailed control of the local education authority.

9 These factors combined to lead the Chief Inspector of Audit to suggest that there may be scope for research into the variances in indicators between polytechnics.

10 In addition to the report of the Pooling Committee, two documents are widely published and readily available which attempt to provide comparisons of costs between polytechnics. These are produced by the Chartered Institute of Public Finance and Accountancy (CIPFA) and the Polytechnic Finance Officers' Group (PFOG). Further information is occasionally produced by the Committee of Directors of Polytechnics (CDP).

11 These publications provide a useful basis for comparing the total expenditure of the institutions but the extent and depth of analysis of the data provided is limited.

12 The introduction of a "capped" AFE pool has had a significant impact on the funding of advanced further education. It appears to have increased financial awareness both in the polytechnics and the local education authorities. In this context of financial rationing, attempts to draw detailed unit cost comparisons between institutions have increased.

13 In June 1981 a publication by the Polytechnic Finance Officers Group entitled "Polytechnic Expenditure Statements, Actuals 1979/80, Estimates 1980/81" suggested that there must be many factors apart from efficiency and effectiveness which account for variations in unit cost. It further suggested that "some of these may be outside the control of the institutions and that such variations include :

(1) Variations in the academic mix of courses, which result in variations in laboratory and workshop needs, in technician support, in equipment needs etc. The analysis into the three groups does minimise such variations, but they must still be borne in mind.

(2) The number of sites which the polytechnic has to maintain, which affects a range of costs such as maintenance, transport and telephones.

(3) The age and grading profile of both the academic and other staff, which affects salary costs.

(4) The use of the polytechnic facilities as a service to the area, eg library, computer.

(5) Surplus resources, particularly staff, following the run-down of teacher training."

14 Also in 1981 an audit study was completed into the management of further education at selected colleges. An audit guide was produced describing how a detailed analysis of resource utilisation might be undertaken in colleges of further education.

15 With these factors featuring in the background the Audit Inspectorate commissioned an exercise to attempt to analyse in more detail the reasons for the variance in unit costs between polytechnics. This exercise commenced in March 1982.

APPENDIX 2

SPECIFICATION FOR THE STUDY

1 The specification for the exercise was laid down by the Audit Inspectorate. The principal requirements were :

(1) To examine the unit costs at polytechnics and to ascertain how far the factors mentioned in the PFOG publication accounted for the variations. Further, to identify and quantify any other factors apart from efficiency and effectiveness which may influence the variations in cost.

(2) For those colleges which did not take part in the PFOG survey, to extract from their accounts and records the information required to fit them in the Polytechnic Expenditure Statements.

(3) To determine the extent to which different management practices affect unit costs and the Pooling Committee cost efficiency and other indicators.

(4) To review the financial systems and assess what progress has been made in meeting the recommendations of the CIPFA "Financial Information System for Institutions of Higher and Further Education in the Maintained Sector Manual of Guidance".

(5) To examine the different arrangements for financing research and recovery of costs - in particular the research undertaken by staff, using official resources or time, but which is either privately financed or from which the results are sold other than through the polytechnic accounting arrangements.

(6) To prepare a report on the audit findings as they relate to each of the selected polytechnics for the District Auditor concerned.

METHODS USED IN THE STUDY

2 Six polytechnics were selected for review by the Audit Inspecotrate in conjunction with the local District Auditor and with the agreement of the Directors of the Polytechnics. This sample represented over 20% of the polytechnics in England and Wales and reflected both a broad geographic spread and a wide range of unit costs.

3 At the selected polytechnics we were, through discussion with the Director and other staff, required to identify and quantify the factors which influenced the level of unit cost at that polytechnic. In practice this meant that discussions took place with a wide range of Directorate staff, administrative officers both within the polytechnics and the local authorities and a range of heads of academic departments and service units.

4 Additionally, advice was taken during the course of this exercise from :

The Department of Education and Science (DES)

The Council of Local Education Authorities (CLEA)

The Further Education Staff College

The Polytechnic Finance Officers Group (PFOG)

The National Association of Teachers in Further and Higher Education (NATFHE)
- in one of the polytechnics

5 We were required to examine the management structure at each selected polytechnic to determine to what extent and in what way differences affected unit cost. This required an examination of the management structure and range of responsibilities, policy decisions taken within the polytechnic and by the local education authority and a subjective view of the management style in operation.

6 We were required to examine the financial information system to assess the extent to which it met the recommendations of the CIPFA Manual of Guidance.

7 We were further required to undertake a review of the controls exercised and records maintained of the use of resources and time for research, no matter how financed. To fulfill this requirement it was necessary to identify the institutions' approach to research and consultancy and its control and monitoring capabilities. It was then necessary to scrutinise book-keeping procedures in parallel with formal approval and operating routines.

PROBLEMS OF DEFINITIONS WITHIN THE EXERCISE

1 The "unit cost" of a polytechnic can be defined as :

$$\frac{\text{Total cost of the polytechnic}}{\text{The full-time equivalent numbers of students}}$$

There has been long and detailed debate on the calculation of full-time equivalent students, particularly relating to the weighting given to all other than full-time students in the calculation of the full-time equivalent. We appreciate that a low conversion factor from part-time to full-time may appear to be detrimental to those institutions which have a high proportion of part-time students, but we do not feel that this is the time to enter that argument. We had to opt for one of the methods of calculation as the purpose of this exercise was not to generate a further alternative.

2 We chose to use the Polytechnic Finance Officers figures for a number of reasons :

(1) The first polytechnic to be visited does not regularly supply information to the Department of Education and Science.

(2) The original specification issued by the Audit Inspectorate implied its use.

(3) We believed that the level of detail supplied in the analysis could be enhanced if necessary at the polytechnics.

(4) We believed that the use of the PFOG statistics would encourage the co-operation of the Finance Officers in this exercise.

PERCENTAGE ANALYSIS OF TOTAL TUITION EXPENSE (ACTUAL EXPENSE 1980/81)

	A	B	C	D	E	F
	%	%	%	%	%	%
Academic staff	51.7	58.6	45.5	55.8	56.3	50.7
Non-academic staff	21.3	14.0	23.7	15.8	17.8	23.3
SUB-TOTAL STAFF COSTS	73.0	72.6	69.2	71.6	74.1	74.0
Other expenses	27.0	27.4	30.8	28.4	25.9	26.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

APPENDIX 5

PERCENTAGE OF ACADEMIC STAFF ON MAXIMUM OF SALARY GRADE

	A	B	C	D	E	F
	%	%	%	%	%	%
Heads of Department	86	100	81	59	92	88
Principal Lecturers	93	97	69	64	61	83
Senior Lecturers /L II	78	74	54	47	68	74
WEIGHTED AVERAGE	80	79	59	52	67	77

APPENDIX 6

ANALYSIS OF NON-TEACHING MANPOWER

	A	B	C	D	E	F
Administrative staff	250 (24)	111 (61)	190 (24)	81 (54)	113 (32)	289 (21)
Technicians	173 (8)	109 (2)	149 (12)	93 (25)	98 (N/A)	195 (16)
Other	40 (153)	3 (2270)	2 (2280)	14 (311)	3 (1203)	22 (280)
Computer staff	34 (108)	22 (310)	35 (130)	23 (190)	29 (124)	54 (114)
Learning resources	67 (91)	62 (110)	125 (36)	39 (112)	34 (106)	92 (67)
Student services	14 (437)	4 (1702)	29 (157)	9 (484)	9 (401)	23 (268)
Total	578 (11)	311 (22)	530 (9)	259 (17)	286 (13)	675 (9)
Note						
Administrative and technician staff on grades above S02	58	9	17 *	10		39
Learning resources staff on Burnham salary scales	2	25	54	10	3	13

* 14 further posts are filled by staff on Burnham salary scales

Bracketed figures indicate students per employee (except for Technicians who are related to group 1 students only.)

ANALYSIS OF SITES, FACULTIES AND DEPARTMENTS SUPPORTED

	A	B	C	D	E	F
Principal sites	8	3	4	2	1	11
Faculties	6	--	6	4	3	8
Departments	--	18	28	17	13	23

Note

PFOG FTE students	6,557	6,958	5,215	4,077	3,609	6,033

EXTERNALLY FINANCED RESEARCH ACCOUNT - PUBLISHED BY PFOG

	A £'000	B £'000	C £'000	D £'000	E £'000	F £'000
STAFF						
Research	35	87	69	--	37	131
Academic	7	--	10	--	--	--
Admin/clerical	18	14	19	--	--	18
Technicians	2	--	--	--	--	10
Other	73	--	--	--	--	--
OTHER EXPENSES						
Premises and grounds	--	--	--	--	--	--
Equipment	38	--	31	--	32	3
Materials etc	13	51	19	--	6	31
Establishment expenses	28	7	24	--	--	3
TOTAL	214	159	172	--	75	196
FINANCED BY						
Research Council	31	172	60	--	45	91
Public corporations	77	--	--	--	7	24
Private companies	106	--	21	--	3	28
Other	--	14	91	--	20	53
TOTAL	214	186	172	--	75	196
NUMBER OF PROJECTS	?	22	15	--	39	48

APPENDIX 9

NATIONAL PATTERNS FOR SSR's – COMPARISON OF POLYTECHNICS VISITED

							National averages		
	A	B	C	D	E *	F	Lower Quartile	Median	Upper Quartile
GROUP I									
Advanced	7.2	9.9	7.7	9.7	9.4	7.3	7.6	8.5	9.1
Non-advanced	6.0	3.3	8.9	–	9.3	3.8	5.4	7.5	8.9
GROUP II									
Advanced	8.9	8.7	7.7	10.6	9.8	10.6	8.7	9.8	10.4
Non-advanced	7.4	6.5	–	–	7.2	4.4	6.3	8.1	9.5
ART & DESIGN									
Advanced	7.8	5.2	8.1	6.9	–	5.5	6.0	6.9	7.5
Non-advanced	7.7	–	9.0	–	–	4.2	6.8	8.9	10.2

Source : 1980/81 Information from DES Pooling Committee data

* Information from polytechnic

APPENDIX 10

NATIONAL PATTERNS FOR AVERAGE STUDENT HOURS - COMPARISON OF POLYTECHNICS VISITED

	A	B	C	D	E *	F	National averages Lower Quartile	National averages Median	National averages Upper Quartile
GROUP I									
Advanced	24.2	16.6	24.1	20.0	21.9	20.8	19.3	21.1	22.4
Non-advanced	32.4	24.2	24.2	-	21.9	24.2	24.2	24.2	24.7
GROUP II									
Advanced	15.6	17.8	19.0	16.5	15.6	14.3	14.2	15.4	16.5
Non-advanced	30.2	20.9	-	-	15.6	25.1	24.6	25.1	25.1
ART & DESIGN									
Advanced	26.8	30.0	26.6	26.7	-	25.2	23.0	26.8	29.6
Non-advanced	37.1	-	31.0	-	-	27.0	27.0	30.0	31.7

Source : 1980/81 Information from DES Pooling Committee data

* Information from polytechnic

APPENDIX 11

NATIONAL PATTERNS FOR AVERAGE LECTURER HOURS - COMPARISON OF POLYTECHNICS VISITED

							National averages		
	A	B	C	D	E *	F	Lower Quartile	Median	Upper Quartile
GROUP I									
Advanced	11.0	13.8	14.8	13.6	13.8	13.4	12.5	13.3	13.7
Non-advanced	11.6	14.6	16.3	-	N/A	10.3	12.8	14.2	15.1
GROUP II									
Advanced	11.8	12.4	13.3	13.3	13.0	12.8	11.4	12.0	13.3
Non-advanced	13.3	15.4	-	-	N/A	12.6	11.6	12.8	14.2
ART & DESIGN									
Advanced	14.5	15.2	15.0	14.1	-	18.1	14.4	16.2	17.6
Non-advanced	19.1	-	17.5	-	-	18.2	15.3	17.5	18.8

Source : 1980/81 Information from DES Pooling Committee data

* Information from polytechnic

APPENDIX 12

NATIONAL PATTERNS FOR AVERAGE CLASS SIZES - COMPARISON OF POLYTECHNICS VISITED

							National averages		
	A	B	C	D	E *	F	Lower Quartile	Median	Upper Quartile
GROUP I									
Advanced	15.7	11.9	12.7	14.1	14.9	11.3	11.9	13.8	14.7
Non-advanced	16.9	5.4	13.3	-	N/A	8.9	10.0	13.3	15.7
GROUP II									
Advanced	11.8	12.5	10.9	12.9	11.8	11.9	10.9	11.9	13.5
Non-advanced	16.9	8.4	-	-	N/A	8.8	11.0	14.6	17.5
ART & DESIGN									
Advanced	14.5	10.2	14.3	12.5	-	7.6	9.5	10.3	14.4
Non-advanced	14.9	-	15.9	-	-	6.2	12.2	14.9	17.2

Source : 1980/81 Information from DES Pooling Committee data

* Information from polytechnic

AUDIT GUIDE

Introduction

This audit guide was drafted before the exercise to review the unit costs of polytechnics was started. During the course of the review the guide was developed and amended as necessary.

The individual sections of the guide should not be treated as exhaustive. They have been designed to give an auditor who is not experienced in the field of higher education an indication of the level of questions which should be posed. Where appropriate the officer to whom the questions should be directed has been indicated.

Certain sections contain questions which are of necessity general due to the lack of uniformity of systems amongst polytechnics. No two polytechnics will organise their management structure in the same way and accordingly the guide seeks to be flexible in its approach.

Statistical information is not requested in a number of areas due to the fact that few institutions maintain easily comparable data at present. More emphasis is placed upon ascertaining the degree of reliance with which polytechnic produced information can be treated.

The sections of the guide are not reproduced in any priority order as it is felt to be the task of any particular auditor faced with a limited timescale to select the areas for review which will yield the most beneficial information. Sections covered by the guide are as follows :

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Revenue implications of new courses 28

Statistical comparisons 29

AUDIT GUIDE

PERSONNEL MANAGEMENT

Individual polytechnics place different degrees of emphasis on the importance of the personnel management function. Arrangements may be reviewed where a separate personnel department exists within a polytechnic which deals with all personnel matters. In other institutions it will be found that one or two members of staff act as liaison officers between the polytechnic management, polytechnic staff and the employing local authority. This guide is aimed at the members of staff who exercise the largest degree of control over the personnel function.

1 What is the establishment of the personnel department? If no separate department exists what is the FTE number of staff who deal with personnel management?

2 What are the duties and responsibilities of staff involved in the personnel function?

3 What is the relationship between the personnel staff employed at the polytechnic with the local authority's personnel department?

4 Obtain organisation charts for all polytechnic activities.

5 Obtain staffing lists/establishment details for all polytechnic activities. If possible identify individual functional areas.

6 Obtain any information available on age and/or grading profiles.

7 Ascertain whether or not staff of the personnel section have any responsibility for manpower budgeting or monitoring. If staff are involved in these activities what form does this involvement take? What are the reporting dates and procedures to management in respect of these activities?

8 Obtain any information on local authority manpower policies which affect the polytechnic, eg early retirement, no compulsory redundancies, redeployment of staff etc.

9 Obtain financial details of early retirements under the Crombie or other compensation scheme.

10 Obtain any details of local conditions of service adopted by the local authority and polytechnic in preference to nationally negotiated conditions. Particular attention should be paid to hours worked per week, class contact hours, gradings and holiday entitlements.

11 Ascertain whether or not personnel staff are expected to undertake any ad-hoc functions such as O & M, development of procedural manuals, health and safety at work, industrial relations etc.

AUDIT GUIDE

FINANCE

The strength of the finance division of a polytechnic is likely to affect the degree of financial control exercised throughout the institution. Although no absolute indication can be given, in terms of numbers of staff, the degree to which the division is self supporting can be used as a basic guide. The term self supporting refers to the level of budgeting, monitoring and final accounts work undertaken by the division on behalf of the local authority's accountancy and/or budgeting sections.

This guide is aimed at the senior finance officer within a polytechnic and is an attempt to determine the degree of control exercised in various activities.

1 What is the establishment of the section?

2 What are the duties and functions of staff in the section?

3 To what degree is the division involved in formulating the annual budget? How much of this is acceptable to the local authority finance department?

4 How is the budget allocated to budget holders?

5 Detail the purchasing system from the ordering stage through to the certification of invoices for payment.

6 Does a system of commitment accounting operate within the polytechnic?

7 How and when is information on committed expenditure and actual expenditure issued to departments?

8 Does the division contribute to the Polytechnic Finance Officers Group (PFOG) financial surveys? If so obtain working papers for recent years returns.

9 Is the division involved in SSR calculations? If so to what extent?

10 What is the policy of the polytechnic in respect of the operation of its catering function? Does the service break-even?

11 What is the policy of the polytechnic in respect of the operation of its hostels function? Does the service break-even?

12 How often are charges reviewed for hostels and catering?

13 Obtain accounts for the last two years for hostels and catering functions.

14 Does the polytechnic obtain any income from letting facilities to outside bodies either within or outside term time? If so in what areas and how much income is generated?

15 What input, if any, does the division have to the DES "Spring Survey" and pooling returns?

16 What is the extent of recharges :

(1) From the polytechnic to the local authority?

(2) From the local authority to the polytechnic?

What is the justification for these recharges? How often are they reviewed? Does any negotiation take place over the level of recharges?

17 How far towards meeting the criteria established in the CIPFA Manual of Guidance have the accounting systems of the polytechnic been developed?

18 If the systems do not meet the requirements of the CIPFA manual what improvements need to be made to achieve this position?

19 Has any evaluation been attempted by the division on the incremental cost of operating a multi-site institution? If so what did this show? Obtain copies of working papers and reports.

20 What is the reporting structure on financial issues from the finance officer through to approval by the funding authority?

AUDIT GUIDE

BUILDINGS MAINTENANCE

Although this is likely to be a relatively small area of expenditure in many institutions, significant variations may be seen from year to year reflecting major repairs costs.

This guide is aimed at the officer within a polytechnic who is designated to be responsible for the building maintenance budget and staff.

1 What is the establishment of the building maintenance section both in terms of salaried staff and manual workers?

2 Does the polytechnic use its own workforce, private contractors or the local authorities DLO to undertake maintenance work? On what basis is the method used selected?

3 How is the maintenance programme formulated? Is it a cyclical programme or are repairs carried out as necessary? Who determines priorities of work?

4 How is the budget prepared for buildings maintenance? Does it reflect needs and priorities or is it an incremental budget with inflation being added to a pre-determined base estimate?

5 How far does the present budget allocation meet the maintenance needs of the polytechnic?

6 Are there any age or historical problems relating to the polytechnics buildings?

7 Have there been any peculiar or particular problems with buildings in recent years, eg structural failure, high alumina cement, blue asbestos, etc? If so obtain details and amounts where available.

8 What is the reporting procedure from the buildings maintenance officer both within the polytechnic and to the local authority?

9 What is the cost of maintenance per square metre of building maintained? How does this compare with :

(1) Other colleges in the authority?

(2) Other polytechnics?

AUDIT GUIDE

BUILDINGS UTILISATION

Information on the utilisation of buildings will differ from institution to institution. In some cases the only information will be which student groups use the buildings whereas others will be able to detail the use of each room at any time during the day.

Equally, the information held on the size of buildings and their floor areas will vary. A number of institutions are known to have very little current information in this field.

This guide is aimed at officers responsible for the physical resources of a polytechnic.

1 Is any information available about the size of buildings in terms of floor areas?

2 How accurate is this information? When was it last updated? Obtain figures in as much detail as possible.

3 What monitoring of usage takes place? How is this undertaken, manually or by computer?

4 Has any comparison been undertaken with DES established norms for space per student? If so what did this show?

AUDIT GUIDE

HEADS OF DEPARTMENTS/SCHOOLS

It is usually found that a head of school is the individual responsible for the largest single part of polytechnic expenditure, the academic staff. Although it will be impossible to interview all heads of departments without undertaking an extensive review, a representative sample should be attempted, ie at least one Group 1 department, one Group 2 and one from Art and Design.

In addition to the control of academic staff, it will often be found that heads of department control the following activities :

Other expenditure within the department

Research policy

Consultancy policy

Budget preparation and control

Capital bids, allocations and control

Support staffing levels

Remission of teaching duties

This guide is aimed at heads of departments (not deans of faculty unless they are responsible for the areas detailed above) and is designed to indicate the degree of control exercised over polytechnic resources at the 'operational' level.

1 Obtain details of the size of the department in terms of FTE teaching and support staff.

2 Obtain the comments of the head of department as to his opinion of the adequacy of staffing levels in terms of volume and mix of staff available. Is the mix felt to be correct? How does this compare with other departments in the institution?

3 What is the departmental SSR? Obtain details of FTE students.

4 What level of part-time or sessional lecturers is utilised by the department?

5 How is control exercised over teaching staff? Do timetables exist? If so how and how often are they compiled? Who compiles them? Are copies retained centrally? If so obtain copies for last academic year and terms to date.

6 Determine the policy of the department towards remission of teaching duties. Particularly note research, research supervision and administration.

7 What input does the head of department have into formulating the budget? Is the budget felt to be adequate? If not what areas need revision? To what extent?

8 How is budgetary control exercised?

9 What information is received from the finance division on commitments and actual expenditure? How often is this information received? Is it felt to be adequate? Does the department operate any internal systems? Are these manual or computerised?

10 Does the department adhere to any local authority or polytechnic negotiated contracts? If not obtain justification.

11 How many research projects are ongoing in the department? Are these internally or externally funded? Obtain details of the system and procedures in operation for a project from the point at which a member of staff proposes a project through to the publication of results.

12 How many staff are currently employed on research projects? What are their designations? What is the value of ongoing projects?

13 Ascertain the department's attitude to consultancy work. How many staff are active in this field? What level of income is generated on behalf of the polytechnic? Does the head of department feel that this is representative of the level of work which he believes is ongoing? (See section on Concsultancy).

14 Does the department suffer any problems because of multi-site operation? If so obtain details and costs where available.

15 Is the level of capitalisation in the department felt to be adequate? Did the department benefit in resource terms from any merger with colleges of FE or teacher training institutions? If so obtain details.

16 Have there been any CNAA reports regarding the department in recent years? If so what were the main points of the reports? Obtain copies where available.

17 How much teaching staff time is spent on what is either administrative or technician-level work?

AUDIT GUIDE

LIBRARIES AND LEARNING RESOURCES

The degree of sophistication of the learning resources arrangements within polytechnics varies from the traditional library through to video and computer based learning systems. Expenditure by such a section will therefore obviously reflect the level of service offered as well as the efficiency with which that service is provided.

This guide is aimed at heads of learning resources units and is designed to determine the level of service provided and the control exercised over expensive assets.

1 What is the establishment of the department? How many staff are paid on Burnham grades? What is the justification for this?

2 What is the budget of the department? Is this felt to be adequate? If not indicate the areas which are badly provided.

3 How is budgetary control exercised? What information is received from the finance officer? Is this felt to be adequate? If not, what improvements are felt to be necessary?

4 What services are provided by the department?

5 What is the degree of mechanisation in the department? Particularly note the video, computer and general media resources functions. What security systems and inventory controls exist?

6 Does multi-site operation cause any organisational or other problems? If so obtain details and costs where available. Particularly note the duplication of provision in terms of both staff and assets and the movement of staff between sites.

7 What are the opening hours of the facilities on individual sites? Are these felt to be adequate or do they reflect an over or under provision?

8 Are the facilities available for use by members of the public or other bodies? If so are any charges made? Obtain details if appropriate.

9 Are any specialised facilities under the control of learning resources, available for use by staff or students eg, TV recording studios etc? If so obtain details and costs.

10 What control is exercised and what checks are carried out to ensure that stocks of books and equipment are safeguarded and accounted for within the department? How often are checks carried out? When was the last check? What did it reveal?

11 Obtain details of purchasing policies for books and equipment. What is the basis for selection of suppliers?

12 Are any usage statistics available? If so obtain details for a number of periods.

13 Is any income generated from the sale of catalogues, photocopying etc? If so obtain details of activities and amounts of income.

AUDIT GUIDE

CATERING

There are various DES circulars relating to the catering function in colleges of higher and further education and polytechnics. Guidelines to take effect from September 1981 were agreed between DES and CLEA. Subsequent charges for residences and catering were specified in CLEA circular 80/10. This was revised in circular 80/40 which was dated 25 September 1980. Basically these circulars state that with the exception of various poolable costs (debt charges, rates etc) a catering function should break-even each financial year.

Various factors will affect the ability and desire of an institution to see that its catering function breaks-even.

This guide is aimed at the catering officer and attempts to determine the past and anticipated future performance of the catering function and to identify factors which prevent the service from breaking even.

1 What is the establishment of the department? Obtain details of both salaried and weekly paid employees.

2 On how many sites does the catering function operate? Obtain details of opening hours.

3 Is management information available for each site in the form of meals served and costs incurred? If so obtain details for at least two years.

4 Identify the past, current and future position of the catering service in terms of breaking even.

5 Has any action been taken, or is any anticipated, to improve the ability of the service to break-even eg, rationalisation, redundancies, pricing policies, preparation policies, marketing policies etc?

6 Do local or national conditions of service relating to vacational retainer payments have any effect on the cost of the service? If so quantify this effect.

7 Does the service operate on any hostel sites? If so what criteria are used to assess the apportionment of the fee between the hostel and catering accounts? Is this felt to be satisfactory? If not in what way could the apportionment be improved or what other methods of accruing income could be used?

8 What purchasing methods are used by the catering officer? Who selects and on what basis are suppliers engaged to service the catering activity?

9 What monitoring of income/meals served takes place? To whom are reports made?

10 Does any liaison occur between the polytechnic catering officer and any other local authority catering managers? If so on what basis?

11 Are any difficulties caused to the catering function because of lack of capital provision? If so obtain details. Is equipment felt to be adequate? Will there be any replacement problems in the future?

AUDIT GUIDE

HOSTELS

The size, quality and extent of hostel provision will vary between institutions. Similarly to the catering function, hostel accounts should be maintained as trading accounts separate from the main polytechnic accounts. The provisions of CLEA circulars 80/10 and 80/40 respectively published in February and September of 1980 apply to hostels in addition to catering. This means that polytechnics should strive to make their hostels income match expenditure with the exception of poolable items.

This guide is aimed at the member of staff with overall responsibility for hostels management and seeks to establish the size of the provision, the past, present and expected future position and determine any particular problems facing the service.

1 How many hostel places are available for use? Where are these situated? What levels of occupancy are experienced?

2 What type of accommodation is offered ie, catering or self-catering?

3 What forms of management information or accounts are available? Obtain copies for recent periods.

4 What charging policies operate? How often are charges reviewed? What was the date and effect of the last review?

5 What is the staffing establishment of the hostels function? Distinguish between salaried and weekly paid employees. Obtain grades of staff.

6 Do any local or national conditions of service exist which influence the attempts to break-even? If so obtain details.

7 What action has been taken in recent years to attempt to break-even eg, deletion of vacational retainer payments? What activity has taken place to encourage vacation lettings?

8 Are existing resources felt to be adequate? If not obtain details of shortcomings in provision.

9 Is the capital allocation felt to be adequate? If not obtain details of shortcomings. Are any problems foreseen in the future as a result of obsolete or ineffective equipment or buildings requiring maintenance or replacement?

AUDIT GUIDE

MULTI-SITE OPERATION

Reference to the costs incurred and difficulties experienced because of multi-site operation are referred to in various other parts of the audit guide. The intention of the questions is to attempt to quantify the effects of split site operations.

It is likely that no single person will have all the information required on multi-site operations but the aim of this guide is to consolidate the points which should be considered in attempting any evaluation.

1 How many individual sites are utilised by the institution? Roughly, what is the student population of each site? Are they felt to be over or under utilised?

2 Obtain comments and any available information on the age and quality of the building stock available.

3 Does any facility exist in the accounting system for individual site costing? If so obtain details for at least two years.

4 Identify any duplication of cost as a result of multi-site operation eg, receptionists, telephonists, library staff and book provisions etc.

5 Identify any costs which have been directly created by multi-site operation eg, bussing of students, cost of land lines and telephone links etc.

6 Is there available space or resources to enable centralisation? If so are there any plans to centralise or rationalise the number of sites?

7 Has any exercise been undertaken by the polytechnic in recent years in an attempt to identify the costs of multi-site operation? If so what were the results? To whom were they reported? Obtain a copy of the report.

8 Are there any other reasons for operating a multiple site activity eg, to maintain a presence in various areas of the Authority?

9 Obtain details of the historical development of the institution from its inception. This may give a guide to the development of particular sites.

10 Identify the cost of staff travel between sites.

11 Are sites rented from external bodies? If so, determine why. Are alternative sites available within polytechnic owned areas?

AUDIT GUIDE

COMPUTER

The size of computer and the extent of its application will obviously vary between institutions. However, the use of the computer by academic and administrative departments together with any commercial usage may significantly affect the cost of the operation to the polytechnic.

This guide is aimed at the computer manager and seeks to ascertain the extent of such applications and assess the degree of sophistication achieved by a polytechnic.

1 Establish the type, size and capacity of the machine(s). On what basis, and when, was the machine purchased?

2 How many locations are served by the computer?

3 If more than one computer exists what is the compatibility of the machines?

4 Is there any overall computer development strategy? Identify the person or body responsible for controlling the development of the computer within the polytechnic. Obtain a copy of any development plan.

5 What is the establishment of the computer division? How many staff are paid on Burnham scales? What is the justification for this?

6 Ascertain whether or not the computer manager has any input into the capital and revenue budgets. Are budgets felt to be adequate? If not identify areas with shortcomings.

7 What is the policy on maintenance and replacement of equipment?

8 How is the budget for the computer division controlled? By whom? What information is received from the finance division? How often is this received? Is this felt to be adequate?

9 Identify any overlap of duties between the computer division and :

(1) Any other polytechnic departments

(2) The local authority

10 How much administrative work is undertaken by the computer?

11 Ascertain the extent of any computerised learning facility in terms of staff employed on systems development and maintenance and the number of terminals and micro-computers used.

12 Ascertain the extent of any usage of the machine by outside bodies and establish the income generated on behalf of the institution.
Is there any surplus capacity or are any plans in existence which will increase this?

AUDIT GUIDE

RESEARCH

In addition to this guide, reference is made to research in the section dealing with heads of department. Research can be split into two categories, internally and externally funded projects. The degree to which projects are controlled will depend largely on the attitude of the polytechnic concerned.

This guide is aimed at the member of the academic or administrative staff who is considered by other members of the polytechnic to be in control of the research activity.

1 Identify the person or body responsible for the control of research.

2 Identify the quantity of internally and externally funded research which has been undertaken in the last two years.

3 Ascertain whether or not the polytechnic has a policy of remission of class contact hours in respect of either time spent on research projects or their supervision.

4 How many research posts are available within the polytechnic? Obtain details of the internal or external funding of each post.

5 Establish the level of secretarial and technical support which is afforded to research.

6 Enquire as to the system of control for a project from the initial proposal through to the publication of a report. (Cross check this with the finance officers and heads of departments descriptions of the system.)

7 Establish the policy of retention of equipment purchased for research projects and for the project reports.

8 Select a representative sample of projects, some ongoing and some completed. Test that the system of control is sound and that income due is promptly collected.

9 Establish that adequate processes exist for the cut off procedures to operate on completion of projects.

10 Obtain any publications available about research policy and any annual reports on research at the polytechnic.

AUDIT GUIDE

CONSULTANCY

Consultancy is consistently a problem area for polytechnics and institutes of higher education. There are often no clear instructions or guidelines published by the governing bodies or management of institutions which can lead to problems of interpretation of the regulations.

It is often argued that to keep abreast of current developments a lecturer needs to be involved with modern practice in the subject in which he is teaching. As an attempt to do this lecturers often undertake private assignments on behalf of outside bodies for which they receive payment. Hence the term consultancy.

The problems, from the point of view of polytechnic management and auditors are one of ensuring that polytechnic resources are not misappropriated and another of preventing any potential third party liabilities from being incurred.

As a result of the level of class contact hours required of lecturers together with the way in which timetables are constructed and monitored it is invariably difficult to establish whether a lecturer is working in either the polytechnics or his own time.

Until a specified working week is agreed upon the level of control will always be doubtful.

This guide is not aimed at any particular member of staff but seeks to establish a check list of points which should be covered as part of a review of this activity.

1 Establish whether any central or departmental system of control exists in respect of consultancy. Obtain details of whatever systems exist.

2 If polytechnic resources are identified as being used for consultancy projects does the polytechnic obtain any recompense? On what basis is the finance division involved in determining the adequacy of income received?

3 Within the polytechnic what happens to any income received from consultancy projects? Establish the amount of income generated by the polytechnic in the last two years for consultancy projects.

4 Have any companies been established by combinations of polytechnic staff which may conflict with or encroach upon the interests of the polytechnic?

5 Test check a sample of declared consultancy projects through the system.

AUDIT GUIDE

TIMETABLING

Problems of timetable audit have already been covered in some detail in the booklet "Colleges of Further Education - Guide to Measurement of Resource Efficiency" which has been published recently by the District Audit Service. However, certain features may differ when polytechnics are reviewed. In addition to the procedures outlined in the above guide, these matters should be considered.

1 Do local conditions of service which are supplementary to the 'normal' Burnham conditions exist? Obtain details.

2 Ascertain the frequency of production of timetables.

3 What timetable evaluation, if any, takes place on lecturers' promotion through the grades. Is this system formalised?

4 Determine whether all staff have timetabled commitment. Ascertain the additional functions of those staff without, or with minimal teaching commitment.

5 Do timetables show remission of class contact time for authorised activities? Do these activities match polytechnic policies on remissions?

6 Is any analysis available for time spent on other than class contact?

7 Do timetables indicate teaching loads in excess of the band for the grade of lecturer? Do these excess hours attract overtime payments? How are these authorised?

8 Ascertain how staff who are employed on a sessional or casual basis are timetabled.

9 Do checks exist for original authorisation and subsequent payment of this type of staff? Do you feel that these are adequate?

AUDIT GUIDE

STUDENT NUMBERS AND COURSE CLASSIFICATION

The classification and interpretation of student numbers is crucial to polytechnic management decisions. Accordingly every effort should be made to ensure that information passed to management upon which decisions are to be based is accurate and generally accepted.

The basis of any student numbers calculation should be the enrolment records held by the academic registry.

This guide is not aimed at any particular member of a polytechnics staff but is designed to ensure that audit attention is focused in certain areas.

1 Test checks of students enrolled to income received should be undertaken to establish the accuracy of such data.

2 As a matter of routine computer tapes of student enrolments are sent to the DES each year and form the basis of the further education students return (FESR). This occurs in November of each academic year.

Each course is given a code number by the DES and these are issued to polytechnics in the form of a code book. The DES collates all FESR information received from polytechnics. Test check student enrolments to the code book to ensure correct coding. Test check various courses to the code book to ensure correct coding. Pay particular attention to students undertaking a degree by way of modular course and verify that the coding applied is justified.

3 If student numbers are collated by the polytechnic for internal management purposes establish the method of weighting part-time and sandwich course students. Take this into account when reviewing any polytechnic generated management information.

4 For statistics provided to other bodies eg, DES "Spring Survey", PFOG, CIPFA etc, establish that the numbers are prepared from the same base as in 1 above.

AUDIT GUIDE

CONTRACTION OF TEACHER TRAINING AND MERGERS WITH COLLEGES

Auditors should be aware, before undertaking a review of polytechnics, of the extent of the run down of the teacher training function. During the 1970's some teacher training colleges were merged with polytechnics. The total number of places available has been reduced severely over the past few years as part of Central Government policy.

The contraction of the teacher training function will have had an effect on polytechnics which have been involved with the merger with teacher training colleges. Occasionally, colleges of further education have been merged with polytechnics.

This guide is aimed at polytechnic senior management and is designed to broadly establish the impact on individual institutions of changes made by the teacher training activity.

1 Establish the number of students enrolled in the teacher training, or education classification, prior to the merger. Obtain details for each year of the course.

2 Establish the number of students enrolled in these fields at the time of the review. Is this number expected to increase or decrease?

3 Obtain similar details to 1 and 2 above in respect of staff.

4 Detail other resources which were employed or utilised prior to the merger.

5 Have any reports been prepared by polytechnic officers which represent the cost of the run down of the teacher training service? If so obtain copies.

6 What action has been undertaken by the polytechnic to reduce the resource input in this area eg, redundancies, early retirements, redeployment, reduction in base budgets etc?

7 Ensure that, in light of items 1 to 5 above, item 6 appears reasonable.

8 What physical resources were transferred to the polytechnic as a result of the merger? Include building stock and inventory items. How were these valued? Have any assets been disposed of and how was this action treated in accounting terms?

AUDIT GUIDE

REVENUE IMPLICATIONS OF CAPITAL EXPENDITURE

This brief guide is designed to ensure that when capital projects are undertaken by the polytechnic full consideration is given to the revenue implications.

1 Ascertain the procedures for compiling the capital programme from individual bids through to formal approval to proceed with the project. What evaluation systems are used?

2 Determine what consideration is given to the revenue effects of capital expenditure taking into account additional manpower and materials requirement.

3 Consider the accuracy of estimated revenue effects following the completion of projects and their integration into the polytechnic.

4 Determine the extent to which projects are monitored and reported back to the authorising bodies.

5 Test check a sample of projects.

AUDIT GUIDE

REVENUE IMPLICATIONS OF NEW COURSES

This guide attempts to ensure that adequate consideration is given to the additional costs of new courses before they are offered to students.

1 Ascertain the procedures in operation for obtaining approval for new courses, both in terms of academic justification and in the ability to support the proposal in financial terms.

2 Determine the processes involved in assessing the financial implications of new courses.

3 Obtain evidence of additional costs being reported to the approving committee.

4 In consultation with polytechnic staff test check the processes involved in establishing a small sample of recently approved courses.

AUDIT GUIDE

STATISTICAL COMPARISONS

Statistical information about polytechnics is available from a number of sources. Detailed below are some of the publications which make comparisons possible between polytechnics.

Publication		Source
Pooling Committee Report	–	DES
Estimates and Actual Expenditure Returns	–	PFOG
Education Estimates and Actuals Expenditure	–	CIPFA (Statistical Information Service)
Management Ratios – (Quartile Bands)	–	Audit Commission

It should be noted that difficulties will occur in attempting to make comparisons between the above publications due to the different weightings attached to student numbers.

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